43331

Operating and Service Manual

MODEL

10A110

PART NUMBER

1003434-501

SERIAL NUMBER

8784

AMPLIFIER RESEARCH

Souderton, PA 18964-9990 USA

TEL 215-723-8181 TWX 510-661-6094 FAX 215-723-5688

Digitized by the Internet Archive
in 2025

https://archive.org/details/manualsplus_05925

TABLE OF CONTENTS

SECTION I: GENERAL INFORMATION

1.1 General Description.....1-1
1.2 Power Supplies.....1-1
1.3 Specifications.....1-1

SECTION II: OPERATING INSTRUCTIONS

2.1 General.....2-1
2.2 Amplifier Operation.....2-2

SECTION III: THEORY OF OPERATION

3.1 Introduction.....3-1
3.2 Amplifier Section.....3-1
3.3 Power Supply.....3-2

SECTION IV: MAINTENANCE

4.1 General Maintenance.....4-1
4.2 Disassembly Procedure.....4-1
4.3 Troubleshooting.....4-2
4.4 Servicing Etched Circuit Boards.....4-2

SECTION V: REPLACEABLE PARTS

5.1 Introduction.....5-1
5.2 Ordering Information.....5-1
5.3 Non-Listed Parts.....5-1
5.4 Circuit Designators.....5-1
5.5 Manufacturers' Abbreviation Listing..5-3
5.6 Master List.....5-3
5.7 Schematics and Bills of Material.....5-3

SECTION I

GENERAL INFORMATION

1.1 GENERAL DESCRIPTION

The Model 10A110 Amplifier is a self-contained broadband unit designed for laboratory applications where instantaneous bandwidth, high gain, and moderate power output are required. Solid state technology is used exclusively to offer significant advantages in reliability and cost. An unusual feature of the Model 10A110 is its wattmeter which enables the operator to determine the actual power delivered to the load by providing a front panel switch to select either forward or reverse power readings rather than merely indicating theoretical power into a perfect 50 ohm load. Another valuable feature is the continuously variable attenuator which enables the operator to adjust the amplifier gain over a 20 dB range to meet his specific requirements by means of a simple front panel control.

A Model 10A110 used with a frequency swept signal source will provide 10 watts of linear swept power output from 1-110 MHz. Typical applications include antenna and component testing, wattmeter calibration, EMI susceptibility testing, use as a driver for frequency multipliers and high power amplifiers and as an RF source for nuclear magnetic resonance studies.

1.2 POWER SUPPLIES

This unit has a self-contained 120/240 VAC, 50/60 Hz, regulated power supply. The power consumption is a nominal 70 watts. Primary circuit fusing is provided.

1.3 SPECIFICATIONS

Refer to Amplifier Research Data Sheet on next page for detailed specifications.

AMPLIFIER RESEARCH
160 School House Road, Souderton, PA 18964-9990 USA
Phone 215-723-8181 • TWX 510-661-6094

MODEL 10A110
10 WATTS CW
1-110 MHz

The model 10A110 is a self-contained, broadband amplifier designed for laboratory applications requiring instantaneous bandwidth, high gain, and moderate power output. A unique feature of this amplifier is its directional wattmeter which allows the operator to determine the actual power delivered to the load. By using a front panel selector switch either forward or reverse power may be measured to an accuracy of ±5% of full scale for any sine wave output. Another valuable feature is the continuously variable attenuator which can be used to adjust the amplifier gain to meet specific system requirements. The model 10A110 employs all-solid-state circuitry and natural convection cooling for maximum reliability.

SPECIFICATIONS

POWER OUTPUT,CW LINEAR	10 watts minimum at less than 1.0 dB gain compression
FLATNESS	±1.0 dB maximum
FREQUENCY RESPONSE	1-110 MHz instantaneously
INPUT FOR RATED OUTPUT	0.1 milliwatt maximum
GAIN(at maximum setting)	50 dB minimum
GAIN ADJUSTMENT(continuous range)	18 dB minimum
INPUT IMPEDANCE	50 ohms, VSWR 1.5:1 maximum
OUTPUT IMPEDANCE	50 ohms, nominal
MISMATCH TOLERANCE	100%, will operate without damage, foldback or oscillation with any magnitude and phase of source and load impedance
MODULATION CAPABILITY	Will faithfully reproduce AM,FM,or pulse modulation appearing on the input signal
NOISE FIGURE	10 dB typical
HARMONIC DISTORTION	Minus 20 dBc maximum at 10 watts
THIRD ORDER INTERCEPT POINT	49 dBm typical
PRIMARY POWER (select via internal taps)	100/110/120/200/208/220/240±5% VAC 50/60 Hz,single phase 200 watts maximum
RF CONNECTORS	Type BNC female
COOLING	Natural convection
WEIGHT	5.0 kg(11 lb)
SIZE(WxHxD)	26.2 x 15.2 x 20.3 cm 10.3 x 6.0 x 8.0 in

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE REV0388

FORM 211 0783

SECTION II

OPERATING INSTRUCTIONS

2.1 GENERAL

Operation of the Model 10A110 broadband amplifier is quite simple. The input signal, whether swept or fixed in frequency, is fed into the jack marked INPUT and the amplifier output signal is taken from the jack labeled OUTPUT. Both INPUT and OUTPUT jacks are standard type BNC. The unit is turned on by activating the power switch marked OFF, ON. In the event of a unit malfunction, protection is provided by fusing located at the rear of the unit. A polarized, three (3) wire AC power cord is also included with the unit to provide cabinet and chassis grounding to the power mains. A front panel meter, calibrated in watts, is provided to enable the operator to measure the power actually delivered to the load. A switch is included to enable selection of either forward power or reverse (reflected power).

CAUTION:
THE 10A110 AMPLIFIER IS NOT CRITICAL IN REGARDS TO SOURCE AND LOAD VSWR AND WILL REMAIN UNCONDITIONALLY STABLE WITH ANY MAGNITUDE AND PHASE OF SOURCE AND LOAD VSWR. IT ALSO HAS BEEN DESIGNED TO WITHSTAND, WITHOUT DAMAGE, RF INPUT POWER UP TO TWENTY (20) TIMES ITS RATED INPUT OF 1 mW: HOWEVER, SIGNAL LEVELS HIGHER THAN 20 mW OR TRANSIENTS WITH HIGH PEAK VOLTAGES CAN DAMAGE THE AMPLIFIER. ALSO, ACCIDENTAL CONNECTION OF THE 10A110 OUTPUT TO ITS INPUT CAUSES OSCILLATIONS WHICH WILL PERMANENTLY DAMAGE THE INPUT TRANSISTOR.

2.2 AMPLIFIER OPERATION

Figure 2.1 shows the Model 10A110 amplifier in pictorial form.

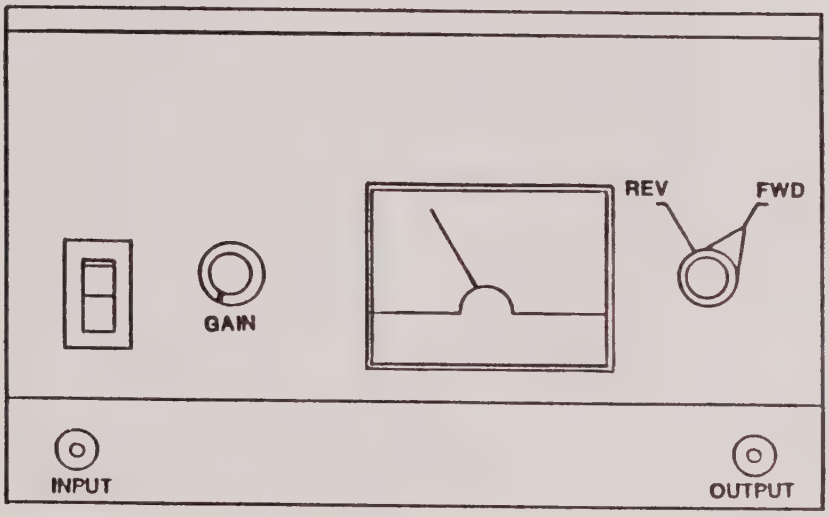


FIGURE 2.1

AMPLIFIER OPERATION

Turn On Sequence:

1. Connect input signal to INPUT connector.
2. Connect load to OUTPUT connector.
3. Select either 120/240 VAC operation by means of switch located on rear of unit.
4. Activate power switch to ON position. A red indicator light mounted within the switch will light when power is applied.
5. Monitor output power (FWD) and adjust gain control if necessary.

CAUTION:
DO NOT CONNECT UNIT TO 240 VAC MEASURED LINE TO LINE. TO DO SO WOULD RESULT IN ONE SIDE OF THE LINE NOT BEING FUSED, CREATING A HAZARDOUS SITUATION. THE 240 VAC FEATURE IS DESIGNED PRIMARILY FOR USE IN COUNTRIES HAVING 240 VAC MEASURED LINE TO NEUTRAL.

SECTION III

THEORY OF OPERATION

3.1 INTRODUCTION

The Model 10A110 amplifier consists essentially of four (4) cascaded stages of broadband transistor amplifiers which yield a total power gain of 50 dB. The first three stages utilize a single transistor each while the fourth, or output, stage uses two transistors connected in push-pull. Input and output matching networks are utilized to provide optimum power transfer of the signal to and from the amplifier with a 50 ohm source and load respectively. Intra-stage feedback is also used to further flatten the frequency response of the overall amplifier and bias stabilization of the individual stages is provided by a zener diode. Interstage coupling is accomplished using broadband ferrite transformers that provide the essential overall flat frequency response. The self-contained power supply employs a full wave rectifier, an integrated circuit error sensing amplifier and a series pass transistor to provide a stable, low ripple, regulated output voltage.

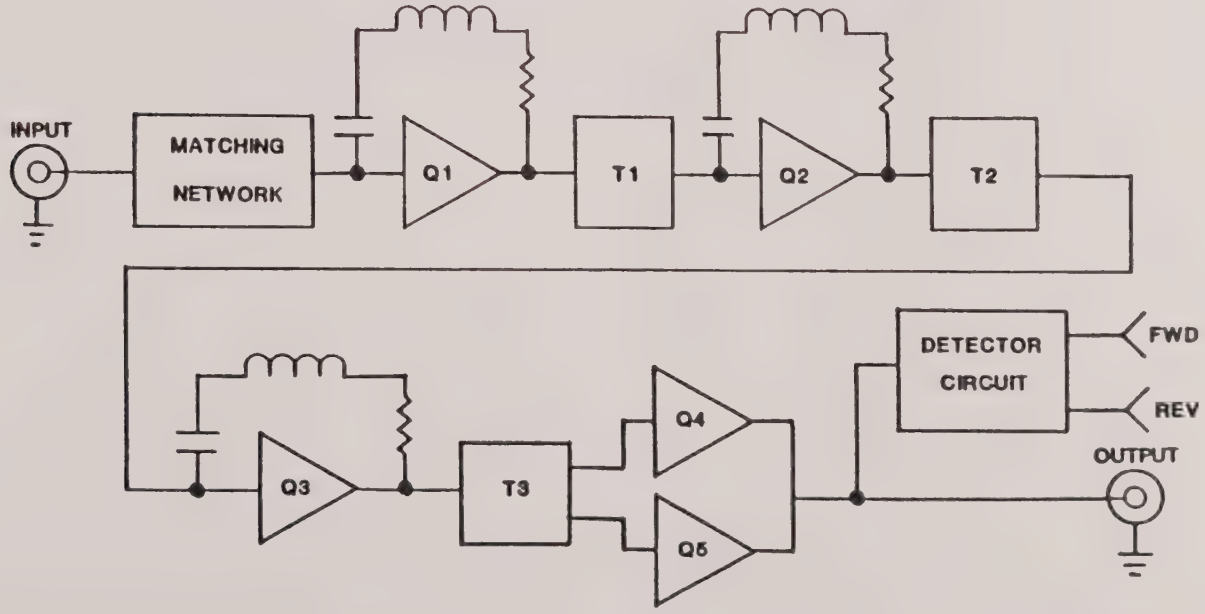


FIGURE 3.1 BLOCK DIAGRAM OF MODEL 10A110

3.2 AMPLIFIER SECTION

Refer to Amplifier Schematic, Drawing No. 1000379.

The input signal to the amplifier is fed into the INPUT jack J1 and is then passed through a matching network consisting of components C1, C2 and L1. The component values in this network are chosen to effect a compromise between obtaining the best VSWR and the lowest insertion loss to the input of the first amplifier stage Q1. The first amplifier stage is used in the common emitter mode with special precautions taken in by-passing of the emitter signal path. Bias stabilization is provided by the zener diode VR1. The output of Q1 is fed through a special broadband transformer T1 into the second amplifier stage Q2. Interstage feedback is employed in this stage from collector to base. The third stage Q3 is essentially identical to the second in the employment of its components. Bias stabilization for the first three stages is provided by zener diode VR1.

The output from the third stage drives a broadband transformer T3 which splits the output in order to drive the push-pull output stage consisting of transistors Q4 and Q5. Emitter resistors R17 and R18 are left unbypassed in order to provide degeneration. The outputs of Q4 and Q5 are combined at L4 and routed to a matching network consisting of components L8, C3, L5, C4, L6, and C5. The output of the matching network is connected to the output connector, J2 and to the detector circuit. The detector circuit is designed to produce DC voltages proportional to the forward and reflected power.

3.3 POWER SUPPLY

Refer to Schematic Diagram No. 1000384.

The self-contained, regulated power supply employs a full wave rectifier utilizing solid state rectifiers CR1 and CR2. Input AC power is fed through RF1 filter FL1 before being switched by the main power switch, S1. The AC power indicator is an integral part of S1. S2 serves to select the primary tap configuration of T1 for operation on either 120 or 240 VAC.

> CAUTION:
> DO NOT CONNECT UNIT TO 240 VAC MEASURED LINE TO LINE. TO DO SO WOULD RESULT IN ONE SIDE OF THE LINE NOT BEING FUSED, CREATING A HAZARDOUS SITUATION. THE 240 VAC FEATURE IS DESIGNED PRIMARILY FOR USE IN COUNTRIES HAVING 240 VAC MEASURED LINE TO NEUTRAL.

DC output from the rectifiers is filtered by C1 before passing through the series regulating transistor, Q1. Integrated circuit IC1 is the error sensing amplifier for the regulator and the reference voltage to it is supplied by the resistive network R1, R2, and R4. R2 is a variable resistor and is set at the factory for proper regulated DC output. Capacitors C2 and C3 are stabilizing capacitors and R5 is the overload sensing element. The nominal operating output voltage across filter capacitor C4 is -28 VDC.

SECTION IV

MAINTENANCE

4.1 GENERAL MAINTENANCE INFORMATION

The Model 10A110 should require very little maintenance since it is a relatively simple instrument. It is built with etched circuit wiring and solid state devices which should ensure long, trouble-free life. However, should trouble occur special care must be taken in servicing to avoid damage to the devices or the etched circuit board.

Since the components are soldered in place, substitution of components should not be resorted to unless there is some indication that they are faulty. In addition, take care when troubleshooting not to short voltages across the amplifier. Small bias changes may ruin the amplifier due to excessive dissipation or transients.

Components within Amplifier Research instruments are conservatively operated to provide maximum instrument reliability. In spite of this, parts within an instrument may fail. Usually, the instrument must be immediately repaired with a minimum of "down time". A systematic approach can greatly simplify and thereby speed up the repair.

However, due to the importance of the amplifier's alignment, it is recommended that when failure is caused by breakdown of any of the components in the signal circuits, the amplifier be returned to the factory for part replacement and amplifier realignment. Shipping instructions are as follows:

Ship PREPAID via United Parcel Service to:

Amplifier Research Corporation
160 School House Road
Souderton, Pa. 18964

4.2 COVER AND CIRCUIT BOARD REMOVAL

CAUTION:
REMOVE POWER CORD FROM RECEPTACLE BEFORE SERVICING.

4.2.1 Remove top cover by removing the four screws.

4.2.3 Remove circuit board and heatsink by removing the eight screws around the perimeter of the heatsink.

4.3 TROUBLESHOOTING

The techniques used in troubleshooting solid state instruments are similar to those used in vacuum tube instruments. For instance, a good way to start troubleshooting is to check the supply voltage at the amplifier supply voltage terminal. If it is low or non-existent check the power supply components starting with the AC fuse.

The power supply output voltage should be nominally -28 volts. Incorrect voltage could result in over dissipation of the transistors or severe distortion and non-linearity of the amplifier. The power supply may be disconnected from the RF board to enable troubleshooting without danger of damaging the RF board. The amplifier board should be removed (Section 4.2) and the power supply output connected to a 25 ohm, 50 watt resistor to simulate the amplifier load.

Finally, determine if the individual amplifier stages are operational by injecting a signal into the transistor base and looking for an indication of output.

4.4 SERVICING ETCHED CIRCUIT BOARDS

When soldering leads, use a hot forty (40) watt or smaller iron. Apply heat sparingly to the leads, not to the printed wiring on the board. Before installing new parts clean holes to receive new part without forcing. Have new leads tinned to receive solder quickly with a minimum of heat and without residue.

SECTION V

REPLACEABLE PARTS

5.1 INTRODUCTION

This section contains information for ordering replacement parts. Information is provided for obtaining parts through Amplifier Research, and or from the manufacturer of the part. Included in this section are the following:

Ordering information
Nonlisted parts
Circuit designators
Manufacturers' abbreviation listing
Master list
Schematics and Bills of Material

5.2 ORDERING INFORMATION

To obtain replacement parts, address order to Amplifier Research, 160 School House Road, Souderton, PA 18964 USA. Identify and include instrument model and serial numbers.

TEL : 215-723-8181
TWX : 510-661-6094
FAX : 215-723-5688

5.3 NONLISTED PARTS

To obtain a part that is not listed, include:

a. Instrument model number
b. Instrument serial number
c. Description of the part
d. Function and location of the part

5.4 CIRCUIT DESIGNATORS

REF= reference document

A = assembly

B = fan

BT = battery

C = capacitor

CB = circuit breaker

CR = diode

DL = delay line

DS = lamp

E = terminal

F = fuse

FL = filter

J = connector, recept

K = relay

L = inductor

M = meter

P = connector, plug

Q = transistor, semiconductor

R = resistor, potentiometer

RT = temperature sensing element

S = switch

T = transformer

TB = terminal block

TP = test point

U = integrated circuit

V = vacuum tube, neon bulb, photocell, etc.

VR = zener diode

W = wire, cable

X = socket

Y = crystal unit

5.5 MANUFACTURERS' ABBREVIATION LISTING

This section contains a list of manufacturers' abbreviations. These abbreviations appear under the drawing number column on the bills of material. The three letters or symbols before the backward slash represent the name of the manufacturer. The number after the backward slash represents the manufacturer's part number. See appendix A for complete listing of manufacturers' abbreviations.

5.6 MASTER LIST

The master list provides the user with a quick view of the major assemblies of a unit. The assemblies are displayed in an indented format with the corresponding schematic shown in the right column.

5.7 SCHEMATICS and BILLS of MATERIAL

The schematics and bills of material are arranged in sequence according to the master list. The schematic which appears first on the master list also appears first in the schematic and bill of material section. Following each schematic are the appropriate bills of material relating to the schematic. This pattern will be repeated throughout this section.

The bills of material used in this manual are computer generated. Each computer part number appears only once on a bill of material along with the total quantity used, and all of the applicable circuit designators. The bills of material are designed to organize the parts in alphanumeric order of their circuit designators. Typical manufacturer part numbers can be found in the drawing number column. The manufacturer's abbreviation appears first, separated by a backward slash, which is followed by the part number.

Amplifier Research has assigned computer product numbers to all parts in inventory. The computer product numbers are located on the left side of the bill of material in the part number field. When referencing or ordering parts from Amplifier Research, it is best to use the computer product number. Parts may also be ordered directly from the manufacturer using the manufacturer's part number if desired.

AAV	AAVID
ABB	ABBEON
ACA	ANTENNA CORP OF AMERICA
ACO	ARCO
ACR	ACRIAN
ADA	ADALET
AEC	ARNOLD ENGINEERING CO
AER	AEROQUIP
AHC	AIRLINE HYDRAULICS CORP
AIN	AIN PLASTICS
AIR	AIRPAX
AIT	AERITALIA
ALC	ALCO
ALE	ALLIED ELECTRONICS
ALI	ASTROLAB INCORPORATE
ALP	ALPHA
AMA	AMATOM
AMC	AMPEX CORP
AMH	AMPHENOL
AMI	AMPLIFONIX INC.
AMP	AMP INC
AMR	AMREP
AMS	AMERICAN STANDARD
APG	AP-O-GEE INDUSTRIES
APN	AMERICAN PRECISION
APO	AMPROBE
APP	A.P. PRODUCTS INC.
APR	AMPERITE
APX	AMPEREX
ARC	AMPLIFIER RESEARCH CORP
ARE	ARROW ELECTRONICS
ARO	AROMAT CORP
ASB	ASTRO-BUBBLES
ASD	AMERICAN STANDARD
ASP	ASSOCIATED SPRING
ATL	ATLEE
AVA	AVA CORP
AVF	ALLENTOWN VALVE & FITTING CO
AVX	AVX CORP
A-B	ALLEN BRADLEY
A-M	AEC MAGNETICS
A-S	ALCOSWITCH
A-T	AHAM-TOR
BBI	BARON-BLAKESLEE, INC
BDX	BENDIX
BEC	BIRD ELECTRONIC CORP
BEL	BELDIN
BEY	BEY ELECTRIC

BFI	BUCKEYE FORGE INC.
BKM	BECKMAN
BOK	BOKER'S INC.
BOP	BOPLA ENCLOSURES
BOR	BOURNS
BUD	BUD COMPANY
BUS	BUSS
B-C	BONCO CORP
B-E	BRIM ELECTRONICS
B-T	BEAU-TECH
CAD	CADDOCK
CAM	CAMBION
CAN	CANNON
CAP	CANPACK
CAR	CARLING
CEN	CENTURY ELECTRONICS
CES	COUNTY ELECTRIC SUPPLY CO
CHE	CHERRY
CIN	CINCH
CJS	CENTRAL JERSEY SCREW & BOLT
CKS	C & K COMPONENTS INC
CLA	CLAROSTAT
CLC	CHICAGO LOCK CO
CMI	CERAMIC MAGNETICS INC
CMP	COMMERCIAL PLASTICS
CNF	CINCINNATI FAN
COE	COMP.ENTERPRISES
COL	COLDER PRODUCTS
COM	COMPUCON
CON	CONCORD ELECTRONICS
COP	COMPLETE PACKAGING
COR	CORCOM
CPC	C.P. CLARE
CPL	COMPULITE
CPS	COLOR PRINT SCREENING
CRC	CRC CHEMICALS
CRL	CENTRALAB
CTS	CTS
CUS	CUSTOM
C-D	CORNELL-DUBILIER
C-P	CAPLUG CO.
C-T	CANADIAN THERMOSTATS
DAL	DALE
DEN	DENNISON
DIL	DIELECTRIC LABS
DKK	DOW KEY/KILOVAC
DSC	DE-STA-CO
DTP	DOYLESTOWN PRINTING
D-E	DABURN ELECTRONICS
D-K	DIGI-KEY CORP.

ECO	EATON CORP
EFJ	E F JOHNSON
EGL	ELGAL
EIM	EIMAC
ELM	ELMENCO
ELR	ENGLER INSTRUMENT
EMC	E.M.C. TECHNOLOGY
EMM	ENGELMANN MICROWAVE
EOD	ELECTRO-OPTIC DEV
ERI	ERIE TECHNOLOGY PRODUCTS
ERM	EREM CORP
ETA	ETA
EVE	EVEREST ELECTRONIC EQUIPMENT
EVR	EVEREADY
EWS	ELMWOOD SENSOR
E-C	EMERSON AND CUMMING
FCH	FAIRCHILD
FER	FERRONICS
FEX	FERROXCUBE
FLO	FLO TRAN PNEU-DRAULICS INC
FOS	FIBRE OPTIC COMMUNICATIONS SPECIALISTS
FRK	FROST KING
FRM	FREEDMAN/MALTA
FRP	FAIR-RITE PRODUCTS
FWC	FW CAPACITORS
GAL	GALLAGER
GEM	GEM
GOL	GOLDKAMP
GRA	GRAINGER
GRE	GREYARC
GRS	GENERAL RADIO SUPPLY
GSI	GSI
GTL	GILWAY TECHNICAL LAMP
G-E	GENERAL ELECTRIC CO
HAD	HARRY DAVIES
HAV	HAVERHILL CABLE AND MFG
HDB	HOMER D BRONSON
HEC	HIGH ENERGY CORP
HEI	HEINEMANN
HEX	HEXACON
HHS	H.H. SMITH
HIM	HITACHI MAGNETICS
HMF	HILTON MANUFACTURING
HMN	HENRY MANN
HOL	HOLLINGSWORTH
HOW	HONEYWELL
HPC	H.P. CADWALLADER
HUB	HUBBEL
HUC	HUDSON CAN CO.
HWK	HAWKINS METAL FABRICATION

H-P	HEWLETT/PACKARD
H-R	HERBACH & RADEMAN
IBM	IBM
ICI	ILLINOIS CAPACITOR INC
IDE	IDEAL
IER	IERC
ILS	ILSCO
IMB	IMB
IMC	IMC
INC	INTERNATIONAL CRYSTAL MFG CO.
INM	INMET
IPI	INSULFAB PLASTICS INC
IRC	INTERNATIONAL RECTIFIER CORP
IRM	IR-CRYDOM
ITF	INTERFAN
ITJ	ITT-JENNINGS
ITT	ITT CANNON
I-E	IMPERIAL EASTMAN
I-G	INDIANA GENERAL
I-S	INSTRUMENT SPEC.
JAR	J.A. REINHARDT
JDE	JOHANSON DIELECTRICS
JFD	JFD
JOH	JOHANSON
JON	JONATHAN MANUFACTURING
JOR	JORITA
KEY	KEYSTONE ELECTRONICS
KIN	KINGS
KLE	KLEIN
KSD	KESTER SOLDER DIV
K-D	KD COMPONENTS
LAF	LAFRANCE CORP
LBA	LAMBDA ELECTRONICS INC
LEV	LEVITON MFG.CO.
LIF	LITTELFUSE
LOR	LORD CORP
MAL	MALLORY
MCG	MCGILL
MCS	MCMASTER CARR SUPPLY CO
MEP	MEPCO-ELECTRA
MET	METUCHEN CAPACITOR
MFG	MANUFACTURER
MHW	M H & W CO
MIC	MICROMETALS IRON POWDER CORES
MIN	MINI-CIRCUITS
MIP	MICRO PLASTICS
MIR	MINOR RUBBER CO
MIS	MICROSWITCH
MMI	MAGNETIC METALS INC.
MMM	MINESOTA MINING MANUFACTURING

MOD	MODUTEC
MOL	MOLEX
MON	MONSANTO
MOS	M/A-COM OMNI SPECTRA INC
MOT	MOTOROLA
MPC	MULTI-PRODUCTS
MRS	MARSH
MTT	MULTITHERM CORP
MUE	MUELLER
MUR	MURATA/ERIE
MWA	MICROWAVE ASSOC
MWC	MIDWEST COMPONENTS
MWM	MIDWEST MICROWAVE
MWS	MICROWAVE SEMICONDUCTORS
NAB	NORTH AMERICAN BRASS AND COPPER
NEB	NEBS INC
NET	NETEK
NIE	NIELSEN HARDWARE
NJS	NJ SEMI
NOB	NOBLITT BROTHERS & CO
NPP	NORTH PENN POLISHING & PLATING
NSI	NATIONAL SEMICONDUCTOR CORP
NVS	NORTHAMPTON VALLEY SERVICE CO.
N-P	NEM-PACK
OHM	OHMITE
OKI	OK INDUSTRIES
OME	OMEGA
OMR	OMRON
PAE	PACIFIC ELECTRICORD
PAJ	PHILLIPS AND JACOBS
PAM	PAMOTOR
PAN	PANASONIC
PBC	POTTER & BRUMFIELD CORP
PCI	PENN CRAFT IND
PEC	PENN CONTROLS
PEK	PEAK
PEN	PENN ENGINEERING
PFL	POLYFLON
PFS	POWER FILM SYSTEMS
PHI	POWER HYBRID
PLM	PLASTIC & METALS
PNT	PANDUIT
PRC	PRECISION RUBBER CO
PSI	POWER SEMICONDUCTOR INC
PSP	PROJECT SUPPORT INC
P-B	PENN-BASCO
QUI	QUICKSET
RAF	R A F ELECTRONIC HARDWARE INC
RCA	RCA
RCL	RCL

TEL	TELEFUNKEN
TEM	TEMPIL
TET	TECHNITOOL
THM	THERMALLOY
THS	THREADED SCREW PRODUCTS CO
TII	TEXAS INSTRUMENTS INC
TRD	TRIAD
TRI	TRI-COUNTY
TRS	TRI-STATE
TRT	TRAVERS TOOL CO
TRW	TRW
TXS	TEXAS SPECTRUM
T-P	THOMAS PRODUCTS
UEC	UNITED ELECTRIC
ULI	ULINE
UNC	UNICORP
UNE	UNELCO
USC	USECO
UTI	UTICA
VIC	VICTOREEN
VIT	VITRAMON
WAK	WAKEFIELD
WAL	WALDOM
WEC	WESTERN ENTERPRISES CO.
WEI	WEICO
WEL	WELLER
WER	WERLATONE
WES	WEINSTEIN
WIL	WILTRON
WIS	WEBER INDUSTRIAL SUPPLY CO
WIT	WITTEK DIV. A MICRODOT CO.
WPS	WORKPLACE SYSTEM
WSC	WEST POINT SUPPLY CO.
XAC	X-ACTO
XCE	XCELITE
YNG	YOUNGS
YPC	YARDLEY PRODUCTS CORP
ZIE	ZIERICK

ML1003434-501 MODEL10A110

DESCRIPTIVE INFORMATION	SUPPORT DOCUMENTS
FREQUENCY 1-110MHz	TEST DATA SHEET 1000570
POWER OUT 10 WATTS	TEST PROCEDURE 1000558
PRIMARY POWER 120/240VAC, 50/60Hz	ENVELOPE DWG
COOLING INTERNAL FAN	SALES DATA SHEET INFORMAL PRINTED
PACKAGE 10"LAB	MANUAL CLASS I
OPTIONS INCLUDED	REMARKS

MATERIAL PULL INFORMATION

ASSY LEVEL 1	2	3	4	5	6	REF DESIG	DESCRIPTION	QTY	ASSEMBLY NUMBER	S	MANUAL INFO PL	AS	SC	SCHEMATIC NUMBER	S
X							COVER KIT, 10"LAB	1	1002878-501		X		X	1000384	
X							RF BOARD ASSY	1	1003439-501		X				
	X						PWB ASSY, RF	1	1003440-501		X		X	1000379	
		X					TRANSFORMER ASSY	2	1003436-501						
		X					TRANSFORMER ASSY	1	1003437-501						
		X					TRANSFORMER ASSY	2	1003438-501						
	X						COMPONENT KIT, RF	1	1003441-501		X				
X							POWER SUPPLY ASSY	1	1003445-501		X			1000384	
	X						REGULATOR ASSY	1	1003442-501		X		X	1000828	
	X						PANEL ASSY, CONTROL	1	1003443-501		X				
		X					ATTENUATOR ASSY	1	1000146-302						
	X						BASE ASSY, P.S.	1	1003444-501		X				

FORM 109 REV0584

AMPLIFIER RESEARCH

DATE	R	DATE	R	DATE	R
30CT87	—				

MASTER LIST

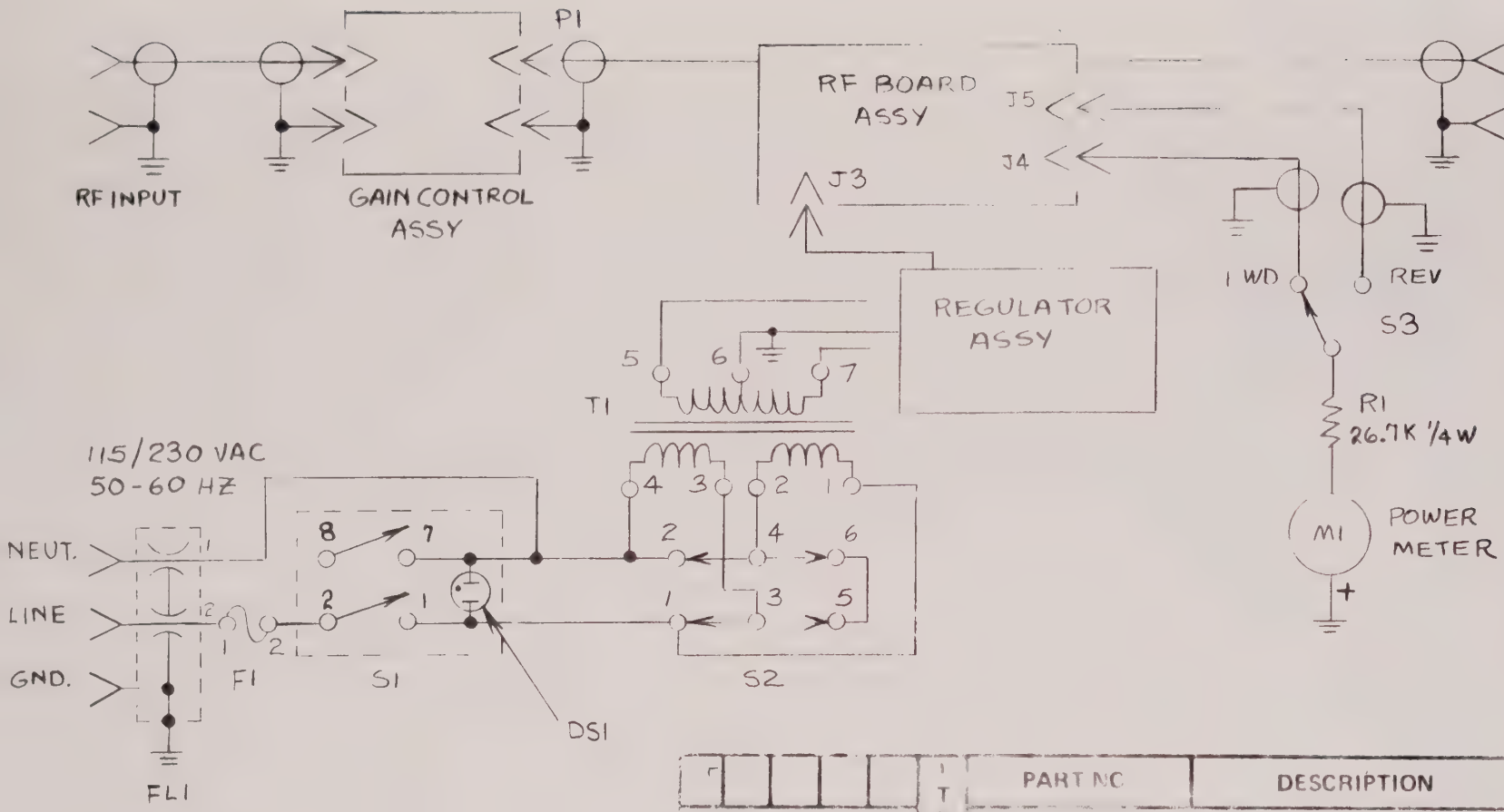
BILL NO: 1003434-501 REV: - U/M: EA DRAWING NO:
MODEL 10A110,1-110MHZ,10 WATTS

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0010	1000384		SCHEMATIC DIAGRAM	EA	REF	ARC\1000384	
5000	1002878-501	-	COVER KIT,10" LAB	EA	1.000		
5000	1003435-501		MANUAL,MODEL 10A110	EA	3.000		
5000	1003439-501	-	RF BOARD ASSY	EA	1.000	ARC\1000374	
5000	1003445-501	-	POWER SUPPLY ASSY	EA	1.000		
5000	11008		SCREW,MACH FIL HD,SLOTTED,S/S,3-56 X .25	EA	4.000	PCI\AN501-D3-4	
5000	11016		SCREW,MACH,PAN HD,CROSS-REC,S/S,6-32 X .38	EA	4.000		
5000	35026		FUSE,FAST ACTING,1/2AMP,250V	EA	1.000	LIF\312.500	F1
5000	66147		POWER CORD,3 CONDUCTOR,18AWG,UNIVERSAL DETACHABLE	EA	1.000	PAE\C3120-008-BL	

BILL NO: 1003439-501 REV: - U/M: EA DRAWING NO: ARC\1000374
RF BOARD ASSY

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
5010	1000362-101	G	HEAT SINK	EA	1.000	ARC\1000362	2
5020	11018		SCREW,MACH,PAN HD,CROSS-REC,ZN,6-32 X .38,TYPE SW	EA	8.000		14
5030	12022		WASHER,FLAT,B/CAD PLTG,.312 OD X .164 ID X .060THK	EA	16.000	UNC\S-781-M01F05AG	15
5040	12027		WASHER,FLAT,C,.377 OD X .182 ID X .045 THK	EA	1.000		16
5060	1003440-501	-	PWB ASSY,RF	EA	1.000	ARC\1000374	
5060	1003441-501	A	COMPONENT KIT,RF	EA	1.000		
5060	77064		COMPOUND,THERMAL JOINT,TYPE 120	EA A/R		WAK\120-S	

5/9/73
6/29/73
6/27/74
4 Feb 75
9 Jan 76
12 Aug 76



ITEM	PART NO	DESCRIPTION	MARK	FIN	MATL
QTY. REQD.	PARTS LIST				

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING
DIMENSIONS ARE IN INCHES AND INCLUDE PLATING THICKNESS
ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2.
REMOVE ALL BURRS AND SHARP EDGES.

DRAWN P.R. Wakeley DATE 4/9/73
CHKD DATE
APVD DATE
ELEC

AMPLIFIER RESEARCH

SCHEMATIC DIAG. POWER SUPPLY

DWG. SCALE	DWG. NO.	REV.
	1000384	F

BILL NO: 1002878-501 REV: - U/M: EA DRAWING NO:
COVER KIT,10" LAB

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSG
5000	1002253-102-F2	B	PLATE,LEFT SIDE	EA	1.000	ARC\1002253	
5000	1002253-103-F2	B	PLATE,RIGHT SIDE	EA	1.000	ARC\1002253	
5000	1002253-105-F2	B	COVER ASSY,TOP	EA	1.000	ARC\1002253	
7100	11064		SCREW,MACH,FLT HD,CROSS-REC,S/S,6-32 X .38	EA	12.000		

BILL NO: 1003441-501 REV: A U/M: EA DRAWING NO:
COMPONENT KIT,RF

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
2500	1000034-105	AH	TRANSISTOR,RF,HI POWER	EA	1.000	ARC\1000034	Q1
2510	1000034-106	AH	TRANSISTOR,RF,HI POWER	EA	1.000	ARC\1000034	Q2
2515	1000034-122	AH	TRANSISTOR,RF,HI POWER	EA	1.000	ARC\1000034	Q3
2530	1000034-121	AH	TRANSISTOR,RF	EA	2.000	ARC\1000034	Q4 ,Q5

BILL NO: 1003445-501 REV: - U/M: EA DRAWING NO:
POWER SUPPLY ASSY

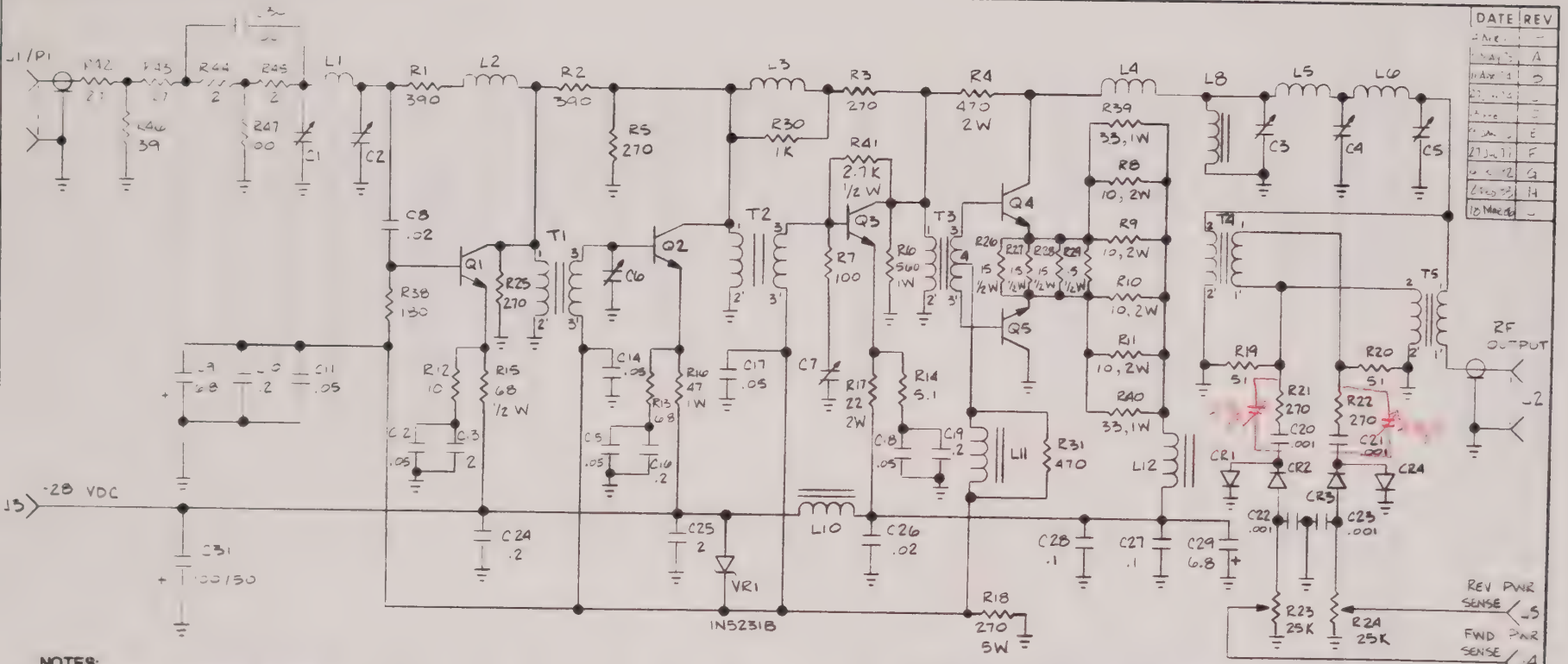
SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0010	1000384		SCHEMATIC DIAGRAM	EA	REF	ARC\1000384	
5000	1003442-501	-	REGULATOR ASSY	EA	1.000	ARC\1000827	
5000	1003443-501	-	PANEL ASSY,CONTROL	EA	1.000		
5000	1003444-501	-	BASE ASSY,POWER SUPPLY	EA	1.000		
5000	11011		SCREW,MACH,PAN HD,CROSS-REC,S/S,4-40 X .38	EA	1.000		
5000	11018		SCREW,MACH,PAN HD,CROSS-REC,ZN,6-32 X .38,TYPE SW	EA	5.000		
5000	11020		SCREW,MACH,PAN HD,CROSS-REC,S/S,6-32 X .50	EA	4.000		
5000	12000		WASHER,LOCK,INT TOOTH,S/S,#4	EA	1.000		
5000	12001		WASHER,LOCK,INT TOOTH,S/S,#6	EA	4.000		
5000	12010		WASHER,FLAT,S/S,#4	EA	1.000		
5000	12011		WASHER,FLAT,S/S,#6,.312 OD	EA	4.000		
5000	13003		NUT,HEX,S/S,4-40,.187AF	EA	1.000		
5000	13004		NUT,HEX,S/S,6-32,.250AF	EA	5.000		
5000	69074		MOUNTING FOOT,RUBBER,5/8 OD,5/8 HT,5/16 DIA,7/16DP	EA	4.000	RUS\REC-2090S	
5000	77064		COMPOUND,THERMAL JOINT,TYPE 120	EA	A/R	WAK\120-S	

BILL NO: 1003443-501 REV: - U/M: EA DRAWING NO:
PANEL ASSY,CONTROL

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
2100	1000357-301	D	METER,SPECIAL SCALE,0-14 W/LOGO	EA	1.000	MOD\1000357	M1
2700	55614-2672F		RESISTOR,FXD,PRECISION,26.7K,1%,1W,CHAR.D	EA	1.000	MFG\RN65D2672F	R1
3100	57032		SWITCH,LIGHTED-ROCKER,W/O INDEP.LAMP CONTACT,DPST	EA	1.000		S1
3110	57017		SWITCH,ROTARY,NON-SHORTING,3 POLE,2-3POS,1SECT.	EA	1.000	CRL\1407	S3
4200	20086	-	CABLE ASSY,COAX,RG-188A/U,BNC,BNC,7.0"	EA	1.000	ARC\1002494	W1
5000	1000146-302	E	ATTENUATOR ASSEMBLY	EA	1.000	ARC\1000146	
5000	1000533-103-F1-M2	F	PANEL,TRIM	EA	1.000	ARC\1000533	
5000	1002207-101	B	NAME PLATE,LOGO,DIE CAST	EA	1.000	LAF\1002207	
5000	1002253-104-F2-M3	B	PANEL,CONN (BNC)	EA	1.000	ARC\1002253	
5000	1002253-107	B	PANEL,FRONT	EA	1.000	ARC\1002253	
5000	11008		SCREW,MACH FIL HD,SLOTTED,S/S,3-56 X .25	EA	4.000	PCI\AN501-D3-4	
	11018		SCREW,MACH,PAN HD,CROSS-REC,ZN,6-32 X .38,TYPE SW	EA	3.000		
5000	11064		SCREW,MACH,FLT HD,CROSS-REC,S/S,6-32 X .38	EA	2.000		
5000	14001		FASTENER,TINNERMAN,C12005-017-4	EA	2.000		
5000	66096		WIRE,SHIELD,1 COND,22 AWG,19 STR,WH TFE TAPE JCKT.	IN	A/R		
5000	69019		KNOB,SKIRTED,1/8"SHAFT,MATTE FINISH	EA	1.000	ROG\RB-67-1SK7M1/8	
5000	69020		KNOB,POINTER,1/4"SHAFT,MATTE FINISH	EA	1.000	ROG\MF-RB-67-1PDCM	
5000	69100		LUG,SHAKEPROOF,BENT,41/64 L,#6 STUD,DUAL HOLE	EA	1.000	HHS\1416-6	

BILL NO: 1003444-501 REV: - U/M: EA DRAWING NO:
BASE ASSY,POWER SUPPLY

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
1300	73002		FUSEHOLDER,HKP	EA	1.000	LIF\342012	XF1
1400	35019		FILTER,LINE,6 AMP	EA	1.000	COR\6EF1	FL1
3100	57044		SWITCH,SLIDE,DPDT,6A,125VAC	EA	1.000	SWC\46256LFE	S2
3200	1001064-101	E	XFMR,PWR,(100/200,110/220,120/240)50/60HZ(57VAC)	EA	1.000	BEY\1001064	T1
5000	1002253-101-F2-M1	B	COVER,BOTTOM	EA	1.000	ARC\1002253	
5000	11028		SCREW,MACH,PAN HD,CROSS-REC,S/S,8-32 X .38	EA	4.000		
5000	12002		WASHER,LOCK,INT TOOTH,S/S,#8	EA	4.000		
5000	12012		WASHER,FLAT,S/S,#8,.375 OD	EA	4.000		
5000	13006		NUT,HEX,S/S,8-32, 343AF	EA	4.000		
5000	69100		LUG,SHAKEPROOF,BENT,41/64 L,#6 STUD,DUAL HOLE	EA	1.000	MMS\1416-6	
5000	69119		RIVET,GRIP-TITE,A,1/8"DIA,1/8"MAT'L THICKNESS	EA	2.000	GRA\4X641	
5000	69120		RIVET,GRIP-TITE,A,1/8"DIA,1/8-1/4"MAT'L THICKNESS	EA	2.000	GRA\5X520	



DATE	REV
	A
	B
	E
	F
	G
	H
18 MAR 86	J

NOTES:

1.0 UNLESS OTHERWISE SPECIFIED:
RESISTOR VALUES ARE OHMS
RESISTOR RATINGS ARE 1/4 WATT
CAPACITOR VALUES ARE MICROFARADS
ALL VARIABLE CAPACITORS ARE 5-80PF
ALL DIODES ARE IN82A

2.0 THIS SCHEMATIC MAY REPRESENT MULTIPLE ASSEMBLIES. SEE APPROPRIATE PARTS LIST FOR FINAL COMPONENT VALUES.

REFERENCE DESIGNATIONS

LAST USED		NOT USED
C31	R47	L7
CR4	T5	L9
J5	VR1	R32, R33,
L12		R34, R36,
P1		R37
Q5		

ITEM	QTY. REQD.	PART NO.	DESCRIPTION	MARK	FIN	MATL
		PARTS LIST				
	774 M1					
	770					
	789					
	788					
	774					
	10 LA					
	USED ON MODEL					

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING.
DIMENSIONS ARE IN INCHES AND INCLUDE PLATING THICKNESS.
ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2.
REMOVE ALL BURRS AND SHARP EDGES.
TOLERANCE: ±.010.

DRAWN B. BALDASARI
DATE 18 MAR 86
CHKD
DATE
MECH
DATE
ELEC
DATE

AMPLIFIER RESEARCH

SCHEMATIC DIAG.
RF BOARD

DWG. SCALE
DWG. NO. 1000379
REV. J
SHEET 1 OF 1

BILL NO: 1003440-501 REV: - U/M: EA DRAWING NO: ARC\1000374
PWB ASSY,RF

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0010	1000379	J	SCHEMATIC DIAGRAM,RF BOARD ASSY	EA	1.000	ARC\1000379	REF
0400	27129		CAP,VARIABLE,5-50PF,250V	EA	7.000	MEP\2B10C5R550GH	C1 ,C2 C3 ,C4 C5 ,C6 C7
0410	27192		CAP,CERAMIC,.022MF,20%,25V,CHAR.Y5T	EA	2.000	MUE\CA223M	C8 ,C2
0420	27055		CAP,TANT,6.8UF,50V	EA	2.000	MAL\TDC685K050NLF	C9 ,C2
0430	27199		CAP,CERAMIC,0.2MF,+80-20%,25V,CHAR.Z4U	EA	6.000	MAL\LC224M	C10 ,C1 C16 ,C1 C24 ,C2
0440	27195		CAP,CERAMIC,0.05UF,20%,25V,CHAR.Y5T	EA	6.000	MUE\CA503M	C11 ,C1 C14 ,C1 C17 ,C1
0450	27179		CAP,CERAMIC,1000PF,10%,600/1000V,CHAR.Z5F	EA	4.000	MUE\GB-102K	C20 ,C2 C22 ,C2
	27196		CAP,CERAMIC,0.1MF,20%,25V,CHAR.Y5T	EA	2.000	MUE\CA-104M	C27 ,C2
0700	1N82A		DIODE,MICROWAVE	EA	4.000		CR1 ,CR CR3 ,CR
1500	20085	-	CABLE ASSY,COAX,RG-188A/U,BNC,12.0"	EA	1.000	ARC\1002494	J2
1510	41110		SOCKET,PIN,.040 PIN-THRU HOLE	EA	3.000	CDN\09-9002-1-04	J3 ,J4 J5
1800	49143	-	INDUCTOR,AIR,WOUND,012-05-03R0-B05-22-2	EA	2.000	ARC\1002503	L1 ,L6
1810	49062	-	INDUCTOR,AIR,WOUND,012-05-05R0-A05-22-2	EA	1.000	ARC\1002503	L2
1820	49142	-	INDUCTOR,AIR,WOUND,012-05-08R0-B05-22-2	EA	1.000	ARC\1002503	L3
1830	49141	-	INDUCTOR,AIR,WOUND,012-05-01R0-B05-22-2	EA	1.000	ARC\1002503	L4
1840	49050	-	INDUCTOR,AIR,WOUND,012-05-02R0-B05-22-2	EA	1.000	ARC\1002503	L5
1850	49140	-	INDUCTOR,CORE,023-603X1-35-22-2-1	EA	1.000	ARC\1002497	L8
1860	49139	-	INDUCTOR,CORE,023-605X1-17-22-2-1	EA	1.000	ARC\1002497	L10
1870	49137	-	INDUCTOR,CORE,023-623X1-20-26-2-1	EA	1.000	ARC\1002497	L11

BILL NO: 1003440-501 REV: - U/M: EA DRAWING NO: ARC\1000374
PWB ASSY,RF

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
1880	49138	-	INDUCTOR,CORE,023-603X1-35-26-2-1	EA	1.000	ARC\1002497	L12
2200	20083	-	CABLE ASSY,COAX,RG-188A/U,BNC,15.0"	EA	1.000	ARC\1002494	P1
2700	55612-3900J		RESISTOR,FXD,METAL FILM,390,5%,1/4-1/2W	EA	2.000	TRW\GP55-3900+/-1%	R1 ,R2
2710	55612-2700J		RESISTOR,FXD,METAL FILM,270,5%,1/4-1/2W	EA	5.000	TRW\GP55-2700+/-1%	R3 ,R5 R21 ,R22 R25
2720	55515-4700J		RESISTOR,FXD,COMP,470,5%,2W	EA	1.000		R4
2730	55514-5600J		RESISTOR,FXD,COMP,560,5%,1W	EA	1.000		R6
2740	55612-1000J		RESISTOR,FXD,METAL FILM,100,5%,1/4-1/2W	EA	1.000	TRW\GP55-1000+/-1%	R7
2750	55515-10R0J		RESISTOR,FXD,COMP,10,5%,2W	EA	4.000	A-B\HB1005	R8 ,R9 R10 ,R11
2755	55512-10R0J		RESISTOR,FXD,COMP,10,5%,1/4W	EA	1.000	A-B\CB1005	R12
2760	55512-6R8GJ		RESISTOR,FXD,COMP,6.8,5%,1/4W	EA	1.000	A-B\CB68G5	R13
2770	55512-5R1GJ		RESISTOR,FXD,COMP,5.1,5%,1/4W	EA	1.000	A-B\CB51G5	R14
2780	55612-68R0J		RESISTOR,FXD,METAL FILM,68,5%,1/4-1/2W	EA	1.000	TRW\GP55-68R0+/-1%	R15
2785	55718-2700J		RESISTOR,FXD,WW,270,5%,5W	EA	1.000	OHM\4603\95J270	R18
2790	55514-47R0J		RESISTOR,FXD,COMP,47,5%,1W	EA	1.000	A-B\GB4705	R16
2800	55515-22R0J		RESISTOR,FXD,COMP,22,5%,2W	EA	1.000	A-B\2205	R17
2810	55512-51R0J		RESISTOR,FXD,COMP,51,5%,1/4W	EA	2.000		R19 ,R20
2820	55931		RESISTOR,VARIABLE,COMP,25K,10%,1/4W	EA	2.000	CTS\U201R253B	R23 ,R24
2830	55513-15R0J		RESISTOR,FXD,COMP,15,5%,1/2W	EA	4.000	A-B\EB1505	R26 ,R27 R28 ,R29
2840	55612-1001J		RESISTOR,FXD,METAL FILM,1K,5%,1/4-1/2W	EA	1.000	TRW\GP55-1001+/-1%	R30
2850	55612-4700J		RESISTOR,FXD,METAL FILM,470,5%,1/4-1/2W	EA	1.000	TRW\GP55-4700+/-1%	R31
2860	55612-1800J		RESISTOR,FXD,METAL FILM,180,5%,1/4-1/2W	EA	1.000	TRW\GP55-1800+/-1%	R38
2870	55514-33R0J		RESISTOR,FXD,COMP,33,5%,1W	EA	2.000	A-B\GB3305	R39 ,R40

BILL NO: 1003440-501 REV: - U/M: EA DRAWING NO: ARC\1000374
PWB ASSY,RF

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
2880	55612-2701J		RESISTOR,FXD,METAL FILM,2.7K,5%,1/4-1/2W	EA	1.000	TRW\GP55-2701+/-1%	R41
3200	1003436-501	-	XFMR ASSY,623X1,30 AWG MAG,TRI,5T	EA	2.000	ARC\1003436	T1 ,T2
3210	1003437-501	-	XFMR ASSY,612X1,24126 AWG MAG,BI,6T	EA	1.000	ARC\1003437	T3
3220	1003438-501	-	XFMR ASSY,101X1,22 AWG MAG 1T,28 AWG MAG 10T	EA	2.000	ARC\1003438	T4 ,T5
3900	1N5231B		DIODE,ZENER,5.1V,5%,500MW	EA	1.000	MOT\1N5231B	VR1
5000	1000339-101	H	PWB,RF BOARD	EA	1.000	ARC\1000339	
5000	11016		SCREW,MACH,PAN HD,CROSS-REC,S/S,6-32 X 3B	EA	0.000		

BILL NO: 1003436-501 REV: - U/M: EA DRAWING NO: ARC\1003436
XFMR ASSY,623X1,30 AWG MAG,TRI,5T

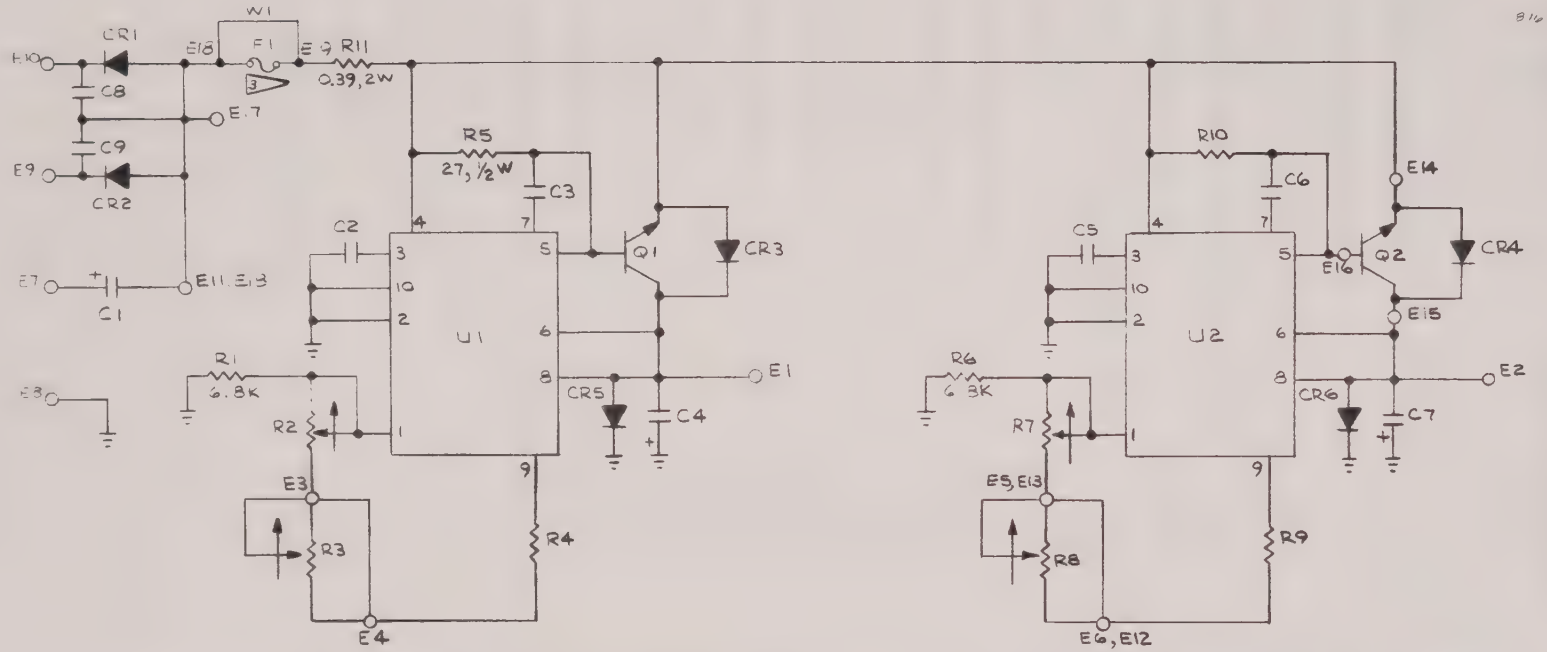
SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
5000	1000643-623	-	CORE,FERRITE,TOROID	EA	1.000	FER\11-720-B	
5000	66049		WIRE,MAGNET,SOLDERABLE,30 AWG,RED	IN	A/R		
5000	66050		WIRE,MAGNET,SOLDERABLE,30 AWG,GREEN	IN	A/R		
5000	66051		WIRE,MAGNET,SOLDERABLE,30 AWG,GOLD	IN	A/R		

BILL NO: 1003437-501 REV: - U/M: EA DRAWING NO: ARC\1003437
XFMR ASSY,612X1,24126 AWG MAG,B1,6T

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
5000	1000643-612	-	CORE,FERRITE,TOROID,3E2A	EA	1.000	FEX\768T188/3E2A	
5000	66048		WIRE,MAGNET,SOLDERABLE,24 AWG,RED	IN	A/R		
5000	66057		WIRE,MAGNET,SOLDERABLE,26 AWG,RED	IN	A/R	BEL\8053	
5000	66116		TUBING,SHRINKABLE,BLACK,.093 EXP,.046 REC	IN	A/R	REM\F-P301	

BILL NO: 1003438-501 REV: - U/M: EA DRAWING NO: ARC\1003438
XFMR ASSY,101X1,22 AWG MAG 1T,28 AWG MAG 10T

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
5000	1000643-101	-	CORE,FERRITE,SLEEVE,01	EA	1.000	I-G\F-5491-01	
5000	66054		WIRE,MAGNET,SOLDERABLE,28 AWG,RED	IN	A/R		
5000	66058		WIRE,MAGNET,SOLDERABLE,22 AWG,RED	IN	A/R	WEI\22 AWG RED	



DATE	REV
[illegible]	A
3 Aug 73	B
8 Aug 73	C
27 Sep 73	D
[illegible]	E

NOTES:

1.0 UNLESS OTHERWISE SPECIFIED:
RESISTOR VALUES ARE OHMS
RESISTOR RATINGS ARE 1/4 WATT
CAPACITOR VALUES ARE MICROFARADS

2.0 THIS SCHEMATIC MAY REPRESENT MULTIPLE ASSEMBLIES. SEE APPROPRIATE PARTS LIST FOR FINAL COMPONENT VALUES.

3 F1 LOCATED EXTERNAL TO REGULATOR ASSY

REFERENCE DESIGNATIONS

LAST USED	NOT USED
C9	R11
CR6	U2
E19	F1
Q2	W1

ITEM	QTY. REQD.	PART NO.	DESCRIPTION	MARK	FIN	MATL
		PARTS LIST				

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING.
DIMENSIONS ARE IN INCHES AND INCLUDE PLATING THICKNESS.
ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2.
REMOVE ALL BURRS AND SHARP EDGES.
TOLERANCE: ± .010.

GENERAL
USED ON MODEL

DRAWN J. VOGENBERG
DATE 19 JAN 76
CHKD
DATE
MECH
DATE
ELEC
DATE

AMPLIFIER RESEARCH

SCHEMATIC DIAG
REGULATOR ASSY

DWG. SCALE: X
DWG. NO. 1000828
REV. E
SHEET 1 OF 1

BILL NO: 1003442-501 REV: - U/M: EA DRAWING NO: ARC\1000827
REGULATOR ASSY

SEQ	PART NUMBER	REV	DESCRIPTION	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0010	1000828		SCHEMATIC DIAGRAM,REGULATOR	EA	REF	ARC\1000828	
0400	27077		CAP,ELECT,2300UF,50V,AXIAL	EA	1.000	MAL\TCG232U050N3C	C1
0410	27196		CAP,CERAMIC,0.1MF,20%,25V,CHAR.Y5T	EA	1.000	MUE\CA-104M	C2
0420	27179		CAP,CERAMIC,1000PF,10%,600/1000V,CHAR.Z5F	EA	1.000	MUE\GB-102K	C3
0430	27068		CAP,ELECT,100UF,50VDC,AXIAL	EA	1.000	ICI\107TTA050A	C4
0440	27198		CAP,CERAMIC,0.1MF,+80-20%,100V,CHAR Z5U	EA	2.000	MPC\EF104Z	C8 ,C9
0700	1N5401		DIODE,3AMP,100V PIV	EA	2.000	SSM\1N5401	CR1 ,CR2
0710	1N5061		DIODE,RECTIFIER,1.5AMP,600V	EA	2.000	TEL\1N5061	CR3 ,CR5
2690	54510		TRANSISTOR,SWITCHING,NPN,60V,25A,125W	EA	1.000	TII\TIP-35A	Q1
2700	55612-6801J		RESISTOR,FXD,METAL FILM,6.8K,5%,1/4-1/2W	EA	1.000	TRW\GP55-6801+/-1%	R1
2710	55931		RESISTOR,VARIABLE,COMP,25K,10%,1/4W	EA	1.000	CTS\U201R253B	R2
2720	55612-3302J		RESISTOR,FXD,METAL FILM,33K,5%,1/4-1/2W	EA	1.000	TRW\GP55-3302+/-1%	R4
2730	55513-27R0J		RESISTOR,FXD,COMP,27,5%,1/2W	EA	1.000	A-B\EB2705	R5
2740	55715-R390J		RESISTOR,FXD,WW,0.39,5%,2W,TYPE BWH	EA	1.000		R11
3700	60029		INTEGRATED CIRCUIT,NEG VOLT REG ,0.5A,35V.0.68W	EA	1.000	MOT\MC1463G	U1
4200	66076		WIRE,IRRADIATED,PVC,TYPE IB,22 AWG,19 STRAND,WHITE IN	A/R			W1
4210	66047		WIRE,BUSS,TINNED COPPER,22 AWG	EA	1.000	ALP\9022	W2
4500	73012		SOCKET,I.C.,10 PIN	EA	1.000	CIN\10-ICS	XU1
5000	1000829-301	F	PWB,REGULATOR	EA	1.000	ARC\1000829	1
5010	52004		HEAT SINK,CLIP MOUNT,TYPE-TO5	EA	1.000	IER\TXBF-032-025B	5

BILL NO: 1000146-302 REV: E U/M: EA DRAWING NO: ARC\1000146
ATTENUATOR ASSEMBLY

SEQ	PART NUMBER	REV	DESCRIPTION	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
5000	80007		CAN, STEEL	EA	1.000	JOR\1 X1 X 1 13/16	1
5010	80006		COVER, STEEL, 1 X 1 13/16	EA	1.000	JOR\1 X 1 13/16	2
5020	25002		ATTENUATOR, 50 OHM	EA	1.000	A-B\GD1N056P500P4	3
5030	UG-625B/U		CONN, COAX, BULKHD RECEPT, TYPE BNC(F)	EA	2.000	AMH\UG-625B/U	4
5040	55612-51R0J		RESISTOR, FXD, METAL FILM, 51, 5%, 1/4-1/2W	EA	2.000	TRW\GP55-51R0+/-1%	5
5050	77103		STRIP, COPPER, .125 W X .008 THK	IN	4.000		6
5060	69102		LUG, SOLDER, 1.250 L, .5000 DIA, 1/4 STUD	EA	1.000	STM\54C7	7

AMPLIFIER RESEARCH

WARRANTIES: LIMITATION OF LIABILITY

Seller warrants (i) that seller has title to the goods sold and (ii) that the goods will be free from defects in material and workmanship for a period of one year from date of shipment shown on Amplifier Research invoice. Seller's sole responsibility in fulfilling these warranties shall be to repair or replace any goods which do not conform to the foregoing warranties or, at seller's option, to give buyer credit for defective goods. Warranty service will be provided only for defective goods which are returned within the warranty period, freight costs prepaid, to Amplifier Research or its designated repair facility.

THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS. SELLER SHALL NOT BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM ANY BREACH OF WARRANTY.

No person other than an officer of Amplifier Research Corporation, has any authority to bind seller to any affirmation, representation or warranty except as specifically included in the preceding terms and conditions.

SCHOOL HOUSE ROAD
SOUDERTON, PA. 18964
PHONE 215-723-8181
TWX 510-661-6094

AMPLIFIER RESEARCH

MODEL NO. 10A110
SERIAL NO. 8784
TESTED BY S.A.L.
DATE AUG 17 1988

TEST DATA SHEET

FREQUENCY (MHz)	POWER OUTPUT WATTS @ ≤ 1dB Compression	HARMONIC DISTORTION (dB below 10 WATTS)
1	>11.6	33
5	>15.5	30
10	>16.1	27
25	>16.9	22
50	15.6	22
75	14.2	21
110	14.5	34

GAIN @ 50 MHz 50 dB

FLATNESS ± 1 dB

WATTMETER CALIBRATION ✓

STABILITY TEST ✓

GAIN CONTROL ✓

160 SCHOOL HOUSE ROAD
SOUDERTON, PA. 18964

PHONE: 215-723-8181

AUG 17 1966

www.manualsplus.com
1030407